REMARKS

Claims 1-21 are pending in this application. New Claim 21 has been added. Support for the new claim is found in the specification as filed.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 1-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Fiato et al. (U.S. Pat. No. 4,618,597) in view of Ozin et al. (U.S. Pat. No. 4,552,855). To establish a *prima facie* case of obviousness, three basic criteria must be met: first, the prior art reference (or references when combined) must teach or suggest all the claim limitations; second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; finally, there must be a reasonable expectation of success. *See* M.P.E.P. § 2143.

The pending claims are directed to self-supported catalyst particles which, despite heating, and against all expectations, have not undergone a phase change from α-Fe_2O_3 to another form (e.g. a spinel form, as in Fiato and Ozin), such that the catalyst has improved properties when used in a Fischer-Tropsch reaction. Independent Claim 1 recites "[s]elf-supported precipitated α-Fe_2O_3-based Fischer-Tropsch catalyst particles for a Fischer-Tropsch slurry-bed process, which particles are produced according to a method comprising the step of: heat treating precipitated α-Fe_2O_3-based particles at a temperature of from 320°C to 500°C, whereby self-supported precipitated α-Fe_2O_3-based catalyst particles are obtained." Independent Claim 17 recites "[s]elf-supported precipitated α-Fe_2O_3-based Fischer-Tropsch catalyst particles, wherein the particles comprise an average primary particle size of from 2 nm to 4 nm."

Fiato et al. teaches the use of iron manganese spinels (corresponding to chemical formula $(Fe_{1-x}Mn_x)_3O_4$) as catalysts in Fischer-Tropsch synthesis. Manganese in the spinel affects both the chemical and physical properties of the catalyst, which in turn affect both the activity and selectivity of the catalyst, thus resulting in a completely different catalyst from that recited in the pending claims. As acknowledged in the Office Action, Fiato et al. does not disclose an unsupported catalyst comprising iron in the form of α-Fe_2O_3.

It the Office Action, Ozin et al. is cited as disclosing alpha iron oxide, and it is stated on page 4, first full paragraph, that "Applicant appears to admit that alpha iron oxide is disclosed at column 9". Applicants respectfully disagree as to both statements.

Ozin et al. teaches zeolite supported metal catalysts, wherein the metal catalyst is in zero-valent (i.e., non-oxidized) form and is deposited in the α-cavities of the zeolite. The passage at col. 7, line 26-32 is cited in the Office Action as teaching the use of alpha iron oxide as a catalyst in a Fischer-Tropsch process. Applicants have reviewed the application as filed corresponding to Ozin et al., as well as the foreign equivalent applications to Ozin et al. (See Information Disclosure Statement submitted herewith). In the Ozin US Application No. 556,002 as filed on November 30, 1983, the Greek symbols are hand-written in the specification. The symbols are ambiguous as to whether they are intended to be gammas or alphas, in that they are tilted by about 45° off of horizontal or vertical. As a result, the header of Table 1 in the printed patent specifies γ-iron oxide in contrast to the text of the corresponding Example 2, which specifies α-iron oxide – a clear contradiction. Accordingly, Ozin only fairly teaches an iron oxide. The specific form of iron oxide (alpha or gamma) is unknown, and thus not fairly taught, because of the contradiction.

An examination of the later filed foreign equivalents of Ozin et al. resolves the contradiction. In every one of the later filed Ozin foreign equivalents (filed December 22, 1983, December 23, 1983, or January 1, 1984), the Greek symbols for alpha and gamma are more carefully handwritten or typeset into the specification such that it is clear which is intended to be alpha and which is intended to be gamma. For example, the Ozin European Published Application No. EP 115,188 A1 referred to "α-cavities" (alpha-cavities) when referring to the zeolite, but "γ-iron oxide" (gamma iron oxide – a spinel form) when referring to certain of the iron clusters. The same clear handwriting is evident in the later filed New Zealand, Australian, and Canadian Ozin applications. Confirmation of the identity of the iron clusters can be found in the Japanese Ozin application, wherein the symbol for gamma is typeset in the text, not handwritten (see Japanese Ozin application page 259, column 1, line 31 and column 6, the sixth line below the table). The disclosures of the European, Australian, Japanese, Canadian, and New Zealand equivalents of the Ozin patent family make it clear that the iron oxide referred to by Ozin is in the form of γ-iron oxide (gamma iron oxide). It is possible that because the nature of the iron oxide in the originally filed US application was unimportant to the invention, Ozin did not amend the specification during prosecution to clarify the contradiction or file a request for a certificate of correction in the granted US patent.

Applicants reiterate their earlier comments that the Ozin catalyst is iron in zero-valent (i.e., metallic, or non-oxidized) form: "No further activation treatment of the material is necessary before it is employed as a catalyst, apart from possible removal of residual solvent, it metal component already being present as ***a catalytically active substantially zero-valent form***" (emphasis added), col. 7, lines 21-26. Applicants also note that all iron in Ozin, regardless of the form, is associated with the zeolite, and thus is in supported form. Use of iron oxide catalysts for Fischer-Tropsch processes is not taught, much less alpha iron oxide catalysts in self-supported form.

Accordingly, Applicants respectfully request withdrawal of the rejection.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns that might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 6/11/07

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